



(51) International Patent Classification:

G01R 23/14 (2006.01) G01R 13/02 (2006.01)
G01R 23/16 (2006.01) G01R 19/00 (2006.01)
G01R 23/17 (2006.01)

(21) International Application Number:

PCT/IL2011/000805

(22) International Filing Date:

10 October 2011 (10.10.2011)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

208735 14 October 2010 (14.10.2010) IL
212220 7 April 2011 (07.04.2011) IL

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,

CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

Published:

— with international search report (Art. 21(3))

— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(54) Title: WIDEBAND SIGNAL ANALYZER

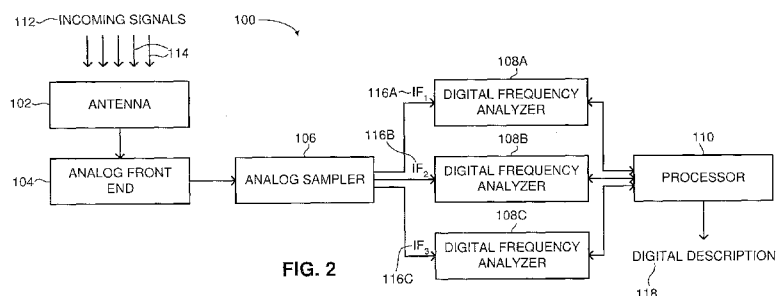


FIG. 2

(57) Abstract: System for collecting at least one signal simultaneously including an analog sampler (106), at least two digital frequency analyzers (DFAs) (108A-C) and a processor (110), the DFAs each coupled with the analog sampler, the processor coupled with each of the DFAs, the analog sampler for receiving the signal as at least one analog electrical signal, for folding the analog electrical signal using at least two different comb frequencies simultaneously into at least one sampled analog electrical signal and for demultiplexing the sampled analog electrical signal into at least two intermediate frequency (IF) signals according to the different comb frequencies, the DFAs for digitally sampling the IF signals into digital signals, the processor for determining a plurality of linear combinations of the IF signals with respect to the different comb frequencies used and for determining at least one frequency of the signal by evaluating the plurality of linear combinations of the IF signals.